Research Notes

Program Steering Committee (PSC): Pavement

June 2014

Title: PPRC14 SPE Sus-B: Environmental Life Cycle Assessment Updates and Applications

Task Number: 2718
Start Date: 07/01/2014
Completion Date: 09/30/2017

Product Category: New or improved decision support tool, simulation, model, or algorithm.

Task Manager: Harold Hunt, Sr. Environmental Planner
harold_hunt@dot.ca.gov

TITLE:
PPRC14 SPE Sus-B: Environmental Life Cycle Assessment Updates and Applications

This research will develop additional and improved algorithms for pavement life cycle assessment for assisting in the reduction of greenhouse gasses in California.

WHAT IS THE NEED?

The California Global Warming Solutions Act (AB 32) calls for significant reductions in greenhouse gas production by 2020. Since a significant portion of greenhouse gas production in this state comes from transportation, Caltrans needs to determine the means required to meet greenhouse gas emission targets and category pollutant regulations.

Using environmental life cycle assessment provides a robust method for determining pavement related actions for reducing greenhouse gas emissions. Life cycle assessment is an approach to quantify the environmental impacts of industrial products and processes. Part life cycle assessment's value is its capacity to provide decision makers with a comprehensive perspective for considering new projects. To be able to improve the use of life cycle assessment for pavements it is necessary to develop additional and improved algorithms for the range of design, construction, maintenance, and rehabilitation strategies used in California.

WHAT ARE WE DOING?

This research will develop additional and improved algorithms for life cycle assessment for the range of design, construction, maintenance, and rehabilitation strategies for assisting in the reduction of greenhouse gasses in California. Questions to be addressed in the research include design life, pavement type selection for truck lanes, continued work on analyzing Caltrans recycling strategies, regional data collection to improve California-

specific life cycle assessment procedures, and support environmental product declarations and the life cycle assessment calculation processes.

This work will be done by updating life cycle assessment models with new inventories, and processes; evaluating design lives, pavement selection for truck lanes, and recycling; support development of better data collection from industry and Caltrans; preparing guidelines and tools for application of LCA; and preparing the project report.

WHAT IS OUR GOAL?

The goals of this task are to improve tools for performing pavement life cycle assessment and to provide government policy makers with new insights for decisions concerning pavement projects and policy related to the reduction of greenhouse gasses and other pavement related matters.

WHAT IS THE BENEFIT?

Overall this task will help improve Caltrans pavement management and help reduce the production of greenhouse gasses in California. This will save the state money while helping to mitigate for climate change.

WHAT IS THE PROGRESS TO DATE?
This is a new task which has not yet begun. The next immediate step is to begin the task.